



Cystic Intestinal Pneumatosis Simulating Hollow Organ Perforation Peritonitis: A Case Report

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Cystic pneumatosis of the intestine is a rare condition whose incidence is often underestimated due to the frequency of minimally symptomatic or asymptomatic forms.

Primary forms are even less common and account for only 15% of all retained cases of this disease.

Peptic ulcers and pyloric stenosis are the most frequently incriminated aetiologies in the pathophysiology of the secondary form of cystic pneumatosis.

We describe the case of a 60 year old patient, admitted with generalized abdominal pain complicated by the appearance of mental confusion.

Clinical examination found a Glasgow score of 13/15 with generalized abdominal sensitivity.

Biological findings: hyperleukocytosis at 22370 /mm, C-reactive protein was elevated at: 73.7 mg/L.

The CT scan revealed gastric and duodenal thickening associated with a medium-sized

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pneumoperitoneum, which could be related to peritonitis due to perforation of a hollow organ. Cerebral level: Minimal meningeal haemorrhage from the brain scythe and cerebellum tent. Surgical exploration showed the appearance of cystic intestinal pneumatosis without digestive distress and without solution of continuity of a hollow organ.

Keywords: *Cystic intestinal pneumatosis; pneumoperitoneum; anaerobic; peptic ulcer perforation peritonitis.*

1. INTRODUCTION

Cystic intestinal pneumatosis is one of the rare etiologies of pneumoperitoneum, the diagnosis of which is frequently made intraoperatively by the discovery of multiple cystic intestinal lesions without interruption of parietal continuity of a hollow organ.

It is a rare pathology, but it exposes a double diagnostic problem: aetiological and differential with other causes of pneumoperitoneum and intestinal pneumatosis, notably peritonitis by digestive perforation and acute mesenteric ischaemia, which require recourse to surgical treatment in extreme urgency.

2. CASE REPORT

It was a 60 year old patient, chronic smoker at 40 PA, presented for generalized abdominal pain evolving since two days, complicated by the appearance of a disorder of conscience has type of mental confusion.

Clinical examination found a confused patient Glasgow 13/15, BP: 110/070 mmHg, HR: 20

C/M, HR: 84 B/M, T°37 C with generalized abdominal sensitivity.

The rectal examination was without anomaly. The blood count showed a hyperleukocytosis of 22370 /mm with a high C-reactive protein of 73.7 mg/L.

The CT scan showed a medium-sized pneumoperitoneum in the supra-mesocolic area of the abdomen. There was significant gastric and duodenal mucosal thickening with sub mucosal oedema and contrast after injection of contrast product. Concluding that the appearance is in favour of peritonitis due to peptic ulcer perforation.

On the cerebral level, there is minimal meningeal haemorrhage from the brain scythe and cerebellum tent.

Surgical exploration showed the appearance of cystic intestinal pneumatosis without digestive distress and without continuity of a hollow organ or other associated lesion.



Fig. 1. Axial slides of abdominal CT scan showing a pneumoperitoneum

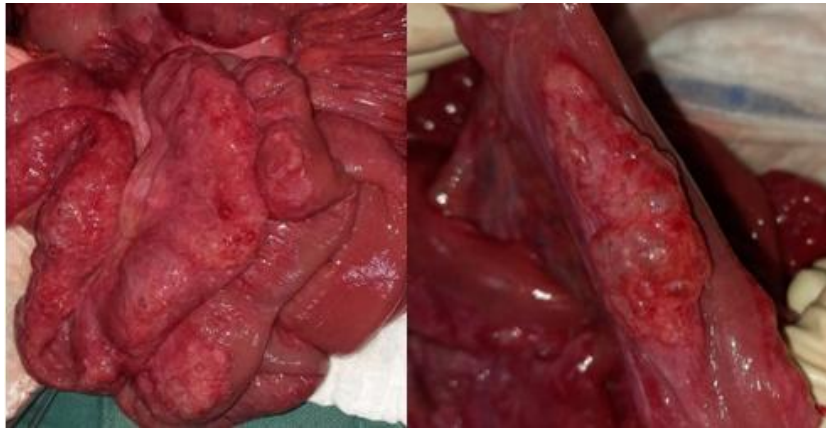


Fig. 2. Peroperative images showing Cystic intestinal pneumatosis

3. DISCUSSION

Cystic intestinal pneumatosis is a rare cause of pneumoperitoneum and is defined by the development of multiple cystic lesions in the intestinal wall [1].

It is a benign disease with a better prognosis, but its aetiology is still poorly understood at present [2].

However, many theories have been proposed to explain the pathophysiology of this condition, of which the mechanical theory is predominant, associating the presence of an obstacle to intestinal transit with ulceration of the digestive mucosa [3,4].

Therefore, the medical theory of anaerobic germs associated with damage to the digestive mucosa has also been described and forms the basis for conservative treatment with metronidazole [5].

Schematically, cystic intestinal pneumatosis can be divided into two subgroups:

Secondary forms, where a digestive or extra-digestive pathology is retained as an etiological factor responsible for the development of parietal cystic lesions, represent 85% of cystic intestinal pneumatosis.

Thus, chronic inflammatory bowel disease, peptic ulcer disease, pyloric stenosis, chronic obstructive pulmonary diseases are the most frequently encountered aetiology.

Let us recall that our patient is a heavy smoker, so the most likely aetiology is peptic ulcer associated with chronic bronchitis.

Primitive or idiopathic forms when no underlying causes can be determined [6,7].

Clinically, cystic pneumatosis is often asymptomatic or even minimally symptomatic [8].

The revealing clinical manifestation is mainly represented by abdominal pain, diarrhoea and more rarely rectal bleeding.

It should be noted that the diagnosis of cystic intestinal pneumatosis is made in the majority of cases only intraoperative for other surgical emergencies, notably hollow organ perforations.

Abdominal CT with contrast injection represents the gold standard in the diagnosis of cystic intestinal pneumatosis, its sensitivity being better than standard imaging. By analysing the radiological lesions, it allows the semiological criteria to be met, thus allowing the diagnosis of cystic pneumatosis to be retained and other surgical causes of pneumoperitoneum and parietal pneumatosis to be ruled out, in particular perforations of hollow organs and mesenteric ischemia [9,10].

As for the treatment, the conservative attitude with a well codified medical treatment is the rule; it aims at eradicating the anaerobic germs incriminated in the development of the cystic lesions by an antibiotic therapy based on metronidazole more or less associated with a hyperbaric oxygen therapy [11-13].

The indication for surgical resection of the pathological intestinal segment is limited to complicated forms and symptomatic forms with failure of well-managed medical treatment.

4. CONCLUSION

Cystic Intestinal Pneumatosis is a benign condition with an often favourable prognosis, but which poses a real problem of confusion with surgical emergencies retained as a cause of pneumoperitoneum.

Computed tomography with intravenous injection of iodine has considerably modified the therapeutic approach to a clinical suspicion of intestinal Pneumatosis by the meticulous analysis of the different radiological signs, thus limiting the iterative recourse to an often useless exploratory laparotomy.

CONSENT

As per international standard or university standard, patient(s) written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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